

CHECKLIST TO DESIGNATE AREAS OF EVALUATION FOR REQUESTS FOR PROPOSAL (RFP)

PROJECT MANAGER			JOB NUMBER (JN)	CONTROL SECTION (CS)
DESCRIPTION IF NO JN/CS				
MDOT PROJECT MANAGER: Check all items to be included in RFP. WHITE = REQUIRED GRAY SHADING = OPTIONAL			CONSULTANT: Provide only checked items below in proposal.	
Check the appropriate Tier in the box below				
TIER I (\$25,000-\$99,999)	TIER II (\$100,000-\$250,000)	TIER III (>\$250,000)		
			Understanding of Service	
			<i>Innovations</i>	
			<i>Safety Program</i>	
N/A			Organization Chart	
			Qualifications of Team	
			Past Performance	
Not required as part of official RFP	Not required as part of official RFP		Quality Assurance/Quality Control	
			Location of Service Personnel (Only check for on-site inspection services)	
N/A	N/A		Presentation	
N/A	N/A		Technical Proposal (if Presentation is required)	
3 pages including cover sheet (No Resumes)	7 pages	19 pages	Total maximum pages for RFP not including key personnel resumes	

**BUREAU OF HIGHWAYS
REQUEST FOR PROPOSAL
for
QUALIFICATIONS BASED SELECTION FOR PREQUALIFIED SERVICES**

The Michigan Department of Transportation (MDOT) is seeking professional services for the project contained in the attached scope of services.

If your firm is currently prequalified for this type of work and you are interested in providing services, please indicate your interest by submitting a Proposal. The Proposal must be submitted in accordance with the latest "Vendor Selection Guidelines for Service Contracts", available on the MDOT website.

For efficiency sake, we are asking that the vendor firm provide 5 paper copies of the Proposal to the MDOT project manager named in the attached scope of services.

These copies must be received by May 5, 2006. Fax and electronic copies are not acceptable.

In addition, provide one **stapled** copy to:

Regular Mail:

Secretary, **Operations Contract Support**
Michigan Department of Transportation
P.O. Box 30050
Lansing, MI 48909

OR

Overnight Mail:

Secretary, **Operations Contract Support**
Michigan Department of Transportation
425 W. Ottawa
Lansing, MI 48933

This copy is to be received within three working days after the due date and time specified above. Please do not deliver in person.

Any questions relative to the scope of services must be submitted by e-mail to the MDOT project manager. Any questions must be asked at least three working days prior to the due date and time specified above. All questions and their answers will be placed on the MDOT website as soon as possible after receipt of the questions. The names of vendors submitting questions will not be disclosed.

For a cost plus fixed fee contract, the selected vendor must have a cost accounting system to support a cost plus fixed fee contract. This type of system has a job-order cost accounting system for the recording and accumulation of costs incurred under its contracts. Each project is assigned a job number so that costs may be segregated and accumulated in the vendor's job-order accounting system.

The selection team will review the information submitted and will select the firm considered most qualified to perform the engineering services based on the proposals. The selected vendor will be contacted to confirm capacity. Upon confirmation, that firm will be asked to prepare a priced proposal. Negotiations will be conducted with the firm selected.

The maximum allowable pages for the proposal are limited to the selected Tier shown on MDOT Form 5100B, which is posted with this RFP. Page limits apply to the entire proposal. The number of pages per section is the decision of the creator of the proposal. Include in proposal only those items that are checked by the MDOT project manager on form 5100B.

MDOT is an equal opportunity employer and MDOT DBE firms are encouraged to apply. The participating DBE firm, as currently certified by MDOT's Office of Equal Opportunity, shall be listed in the Proposal.

The scope of services is attached to this solicitation.

SCOPE OF DESIGN SERVICES
HPSL 33010 – 87316C
Farm Lane on the campus of Michigan State University

I. PRIMARY PREQUALIFICATION CLASSIFICATION

Railroad Bridge Design
Roadway Rehabilitation & Rural Freeways

II. SECONDARY PREQUALIFICATION CLASSIFICATION

Structure Surveys
Road Design Surveys
Municipal Utilities Design
Pavement Marking Plans
Maintaining Traffic Plans & Provisions
Landscape Architecture
Geotechnical Engineering Services
Hydraulics
Permanent Non-Freeway Traffic Signing Plans
Pump Station Design
Specialty Walls/Slopes Design
Traffic Signal Design

III. DBE REQUIREMENT

DBE Requirement: 10%

MDOT Project Manager:

Mark C. Harrison

Address: 425 West Ottawa Street, P.O. Box 30050, Lansing, MI 48909

Phone Number: 517-373-2346 Fax: 517-335-3234

e-mail: harrisonm@michigan.gov

Survey Consultant Coordinator

Thomas Benson

Address: 425 West Ottawa Street, P.O. Box 30050, Lansing, MI 48909

Phone Number: 517-373-0020

e-mail: bensont2@michigan.gov

IV. SCOPE OF CONSULTANT DUTIES

CS: 33010 JN: 87316C

4/6/2006

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Complete the design of this project including, but not limited to the following:

- A. Perform design surveys.
- B. Perform a roadway drainage study and related design.
- C. Prepare required plans, typical cross-sections, details, and specifications required for design and construction of roadway and railroad overpass structures. These may also involve temporary railroad track run-arounds to maintain railroad traffic during project construction
- D. Compute and verify all plan quantities.
- E. Prepare staging plans and special provisions for maintaining vehicular and train traffic during construction.
- F. Prepare pavement marking plans and special provisions.
- G. Prepare municipal utility design for storm sewer, pump station, electrical lighting, and sanitary and watermain as required.
- H. Provide solutions to any unique problems that may arise during the design of this project.
- I. The Consultant may be required to provide Design Services during the construction phase of this project. If Construction Assistance is required, then a separate authorization for those services will be issued.
- J. Perform Roadway Geotechnical Investigation.
- K. The consultant may also be required to provide a theoretical cost estimate for the grade separation work at each of the two railroad crossings with the existing cross section of Farm Lane retained. This information will be used to help determine the railroad companies' share of project costs.
- L. The consultant will be required to work with the project manager and MSU to incorporate aesthetic treatments to the railroad structures and the vertical wall faces in the recessed sections of Farm Lane.

IV. PROJECT LOCATION

The project is located on Farm Lane, from Mt. Hope Road northerly to just south of Wilson Road on the campus of Michigan State University in Ingham County. The project length is approximately 4,170 feet (0.8 mile).

V. PROJECT DESCRIPTION

This project consists of all work related to designing this road and bridge construction project, including but not limited to the following: designing two railroad underpass structures, the realignment and widening of Farm Lane including bike lanes and pedestrian facilities, the work required to tie in intersecting streets, parking lot entrance reconstruction, and storm sewer design including a pump station. Each of the two railroad underpass structures will carry two mainline tracks over Farm Lane. The design will include plans to maintain both vehicular and railroad traffic during the life of the project. An engineering report with a detailed structure study has been completed for this project. It is anticipated that the consultant hired for this project will begin at the preliminary design stage of the project.

Work shall conform to current MDOT, FHWA, AASHTO, AREMA, practices, guidelines, policies, and standards (i.e., Road Design Manual, Standard Plans, Drainage Manual, Roadside Design Guide, A Policy on Geometric Design of Highways and Streets, Michigan Manual of Uniform Traffic Control Devices, etc.). Conformance to the specifications of CSX and CN railroads will also be required.

VI. PROJECT CONSTRUCTION COST

A. The estimated cost of construction is:

1.	Safety Related Work	\$ 26,000
2.	Mainline Pavement	\$ 1,104,900
3.	Non-Motorized	\$ 302,900
4.	Improve Alignment (Vertical/Horizontal) (includes underpass structures)	\$ 6,130,400
5.	Drainage Adjustment and Improvement	\$ 918,600
6.	Detours and Maintaining Traffic	\$ 129,300
7.	Permanent Pavement Markings/Signs/Signals	\$ 176,200
8.	Miscellaneous	\$ 1,928,200
9.	Parking Lot Entrance Reconstruction	\$ 229,600
10.	Environmental	\$ 22,700
11.	Contingency (20%)	\$ 3,419,900
	CONSTRUCTION TOTAL	\$14,388,700

The above construction total is the amount of funding programmed for this project. The Consultant is expected to design the project within the programmed amount.

If at any time the estimated cost of construction varies by more than 5% of the current programmed amount, then the Consultant will be required to submit a letter justifying the changes in the construction cost estimate.

VII. PROJECT SCHEDULE

The scheduled Consultant's plan completion date for this project is **February 1, 2008**. The Consultant shall use the following events to prepare the proposed implementation schedule as required in the Guidelines for the Preparation of Responses on Assigned Design Services Contracts. These dates shall be used in preparing the Consultant's Monthly Progress Reports.

It is important to note that Railroads require anywhere from eight months to one and a half years (or longer, depending on project complexity and the particular Railroad) after receipt of preliminary plans to complete their reviews, prepare force account estimates, and sign the agreement. As Railroad agreements are needed before advertising, letting, and awarding a project, sufficient time must be allowed for the Railroad to complete its process. This project involves both CN Railroad and CSX Railroad and the consultant will be required to coordinate directly with and submit multiple iterations of design plans to the railroads' design department and to ultimately receive each railroad's approval of the design plans affecting the railroad.

<u>Target Date</u>	<u>Task #</u>	<u>Description</u>
	3330	Conduct Design Survey
	3360	Prepare Base Plans
09/01/2006		Submit Base Plans
	3370	Prepare Structure Study
09/01/2006		Submit Structure Study
09/18/2006	3380	Review Base Plans
	3390	Develop the Construction Zone Traffic Control Concepts
	3510	Perform Roadway Geotechnical Investigation
	3522	Conduct Hydraulic/Hydrologic Analysis for Storm Water Conveyance
	3530	Conduct Structure Foundation Investigation
11/1/2006		Submit Plans for Utility Review (approximately 50% complete)
1/1/2007		Submit Environmental Permit Information (6 months prior to the Plan Completion Date)
	3540	Develop Construction Zone Traffic Control Plan
	3552	Develop Preliminary Permanent Pavement Marking Plan
	3553	Develop Preliminary Non-Freeway Signing Plan
	3570	Prepare Preliminary Structure Plans
	3580	Develop Preliminary Plans
12/15/2006		Submit Preliminary Plans
1/15/2007	3590	Review Preliminary Plans (The Plan Review)
	3670	Develop Municipal Utility Plans

	3675	Develop Electrical Plans
	3822	Complete Permanent Pavement Marking Plan
	3823	Complete Non-Freeway Signing Plan
	3830	Complete the Construction Zone Traffic Control Plan
	3840	Develop Final Plans and Specifications
	3850	Develop Structure Final Plans and Specifications
11/1/2007		Submit Final Plan/Proposal Package to MDOT for final review
	3870	Hold Omissions/Errors Check (OEC) Meeting
12/1/2007		Omissions/Errors Check (OEC) Meeting (approximate date)
12/15/2007		Consultant's Plan Completion: Final Construction Plan/Proposal package with recommendations incorporated to MDOT (two weeks after OEC Meeting)
1/15/2008		Final Deliverables to MDOT

VIII. PAYMENT SCHEDULE

Compensation for this Scope of Design Services shall be on an actual cost plus fixed fee basis.

IX. VENDOR PAYMENT

All invoices/bills for services must be directed to the Department and follow the 'then current' guidelines. The latest copy of the "Professional Engineering Service Reimbursement Guidelines for Bureau of Highways" is available on MDOT's Bulletin Board System. This document contains instructions and forms that must be followed and used for invoicing/billing; payment may be delayed or decreased if the instructions are not followed.

Compensation for this Scope of Design Services shall be on an actual cost plus fixed fee basis. Payment to the Vendor for Services rendered shall not exceed the "Cost Plus Fixed Fee Not to Exceed Maximum Amount" unless an increase is approved in accordance with the contract with the Vendor. All invoices/bills must be submitted within 14 calendar days of the last date of services being performed for that invoice.

Direct expenses will not be paid in excess of that allowed by the Department for its own employees. Supporting documentation must be submitted, with the invoice/bill, for all billable expenses on the Project. The only hours that will be considered allowable charges for this contract are those that are directly attributable to the **PE** activities of this Project. Hours spent in administrative, clerical, or accounting roles for billing and support, are not considered allowable hours; there will be no reimbursement for these hours.

Reimbursement for overtime hours will be limited to time spent on this project in excess of forty hours per week. **Expected overtime must be included in the cost proposal. A request to change the approved overtime amount must be submitted in writing to the project manager.**

X. MONTHLY PROGRESS REPORT

On the first of each month, the Consultant Project Manager shall submit a monthly project progress report to the Project Manager, Mark C. Harrison. The monthly progress report shall follow the guidelines in attachment C.

XI. FORMAT

Full size plans (cut size 24" x 36") and half size (cut size 11" x 17") consisting of plan sheets and profile sheets will be required. For the full size plan sheet ratio (scale), use 1"=40' for road design plan sheets and refer to MDOT's Bridge Design manuals for bridge design plan sheets.

Other plan sheets that are required for this project shall be completed by the Consultant. These include, but are not limited to the following plan sheets:

- A. The title sheet. MDOT will provide a map of the area on a disk in our workstation format. If the map is not available, MDOT will provide a map that could be used. The Consultant shall be responsible for any revisions to the title sheet and the title sheet and map shall meet MDOT format and layout guidelines.
- B. Typical Cross-Sections.
- C. Project specific Miscellaneous Details.
- D. Note Sheet.
- E. Legend Sheet.
- F. Witness and benchmark sheet(s).
- G. Construction staging and traffic control plans including possible temporary railroad run-around tracks.
- H. Detail grade sheets for major intersections, ramp gores and critical areas.
- I. Soil Boring and Pavement Core Sheet.
- J. Vicinity and drainage map sheet.
- K. Alignment sheet.
- L. Culvert detail sheet(s).

- M. Bridge Soil boring log sheet(s).
- N. Pavement marking plan(s).
- O. Utility Plans (storm sewer, watermain, and lighting)
- P. Landscape Plans (includes aesthetic treatments).
- Q. Bridge Plan Sheets.
- R. Plan sheets and survey descriptions detailing the limits of easements needed from each railroad.

All plans, special provisions, estimates, and other project related items shall meet all MDOT requirements and detailing practices (i.e., format, materials, symbols, patterns, and layout) or as otherwise directed by the Project Manager.

All plans, specifications, and other project related items are subject to review and approval by MDOT, **MSU**, CSX and Canadian National railroads.

XII. UTILITIES

The Consultant shall be responsible for obtaining and showing on the plans the location and names of all existing utilities within the limits of the project and coordinating with the utilities to ensure that there will be no conflicts with the proposed work. In the course of resolving utility conflicts, the Consultant shall make modifications to the plans or design details and provide assistance as directed by the Project Manager. The Consultant shall attend any utility meetings called to ensure that the concerns are addressed on the plans involving utilities. The Consultant shall assist in the review of utility permit requests to ensure compatibility with the project.

XIII. TRAFFIC CONTROL

The Consultant shall be responsible for all traffic control required to perform the tasks as outlined in this Project Scope of Design Services.

XIV. PRE-QUALIFICATION AND SUBCONTRACTING OF CONTRACT WORK

Any task(s) for which the Consultant is not prequalified must be completed by a Subcontractor that is pre-qualified for that task(s). Any questions regarding prequalification should be directed to Phil Brooks, Prequalification Manager, at (517)335-2514.

The Department's prequalification is not a guarantee or warranty of the subcontractor's ability to perform or complete the work subcontracted. The Consultant remains fully responsible to the Department for completion of the work according to the authorization as if no portion of it had been subcontracted.

All subcontractor communications with the Department shall be through the Consultant to the MDOT Project Manager. This requirement may be waived if a written communication plan is approved by the MDOT Project Manager.

The Department may direct the immediate removal of any subcontractor working in violation of this subsection. Any costs or damages incurred are assumed by the Consultant by acceptance of the authorization. It is further understood that the Consultant's responsibilities in the performance of the contract, in case of an approved subcontract, are the same as if the Consultant had handled the work with the Consultant's own organization.

XV. CONSULTANT RESPONSIBILITIES (GENERAL)

- A. Meet with the MDOT Project Manager to review project, location of data sources and contact persons, and review relevant **MSU** operations. The Consultant shall review and clarify project issues, data needs and availability, and the sequence of events and team meetings that are essential to complete the design by the project plan completion date. Attention shall be given to critical target dates that may require a large lead time, such as geotechnical requirements, ROW submittal dates, Railroad coordination requirements, utility conflict resolution, local agency meetings, etc.
- B. Maintain a Design Project Record which includes a history of significant events (changes, comments, etc.) which influenced the development of the plans, dates of submittals and receipt of information.

C. P/PMS TASK 3330 - CONDUCT DESIGN SURVEY

Perform surveys as necessary to design this project (see Attachment A). The Consultant's survey shall be as complete and accurate as necessary to:

1. Calculate and verify plan quantities to the Consultant's standards.
2. Locate and lay out the future construction of this project.
3. Perpetuate affected property controlling corners for monument preservation.

As part of the design proposal, the Consultant shall present a detailed survey work plan for review, evaluation and acceptance by the MDOT Project Manager. A final survey report for review and approval by the MDOT Survey Unit is required. Acceptance of the survey by MDOT Design Survey does not in any way relieve the Consultant of responsibility and liability for the content of the survey.

- D. **P/PMS TASK 3360 - PREPARE BASE PLANS**
See Consultant Manual Attachment D for details.
- E. **P/PMS TASK 3370 - PREPARE STRUCTURE STUDY**
See Consultant Manual Attachment D for details.
- F. **P/PMS TASK 3380 - REVIEW BASE PLANS**
See Consultant Manual Attachment D for details.
- G. **P/PMS TASK 3390 - DEVELOP THE CONSTRUCTION ZONE TRAFFIC CONTROL CONCEPTS**
See Consultant Manual Attachment D for details.
- H. Develop the bridge items required for this project according to the enclosed Attachment E.
- I. Perform storm sewer design calculations for a 50 year storm event, including a pump station, appropriate outlets and energy dissipation if necessary, as outlined in the MDOT Drainage Manual. Detention may be required. Detention pond design must meet, but is not limited to, local agency storm water regulations and Michigan Department of Environmental Quality water quality permit requirements. Submit all design calculations, drainage maps, and proposed profiles to the MDOT Project Manager for review prior to the Plan Review.
- J. The consultant shall identify the locations of any water main and/or sanitary sewer on the project.
- K. If watermains and/or sanitary sewers are present within the project limits, the CONSULTANT shall evaluate the necessity for the relocation of water mains and sanitary sewers, in accordance with Design Division's Informational Memorandum #441B and #402R dated April 13, 1992. The CONSULTANT shall submit a report to Steven J. Urda, Design Engineer - Municipal Utilities, Design Division for review and concurrence. A copy of the report shall be sent to the Project Manager. **If relocation is necessary and watermain and/or sanitary sewer work is not part of the Scope Of Work, contact the MDOT Project Manager immediately.**
- L. **P/PMS TASK 3510 - PERFORM ROADWAY GEOTECHNICAL INVESTIGATION**
Perform the needed soils surveys, soils boring and geotechnical investigation that will be needed to develop the construction plans and quantities. Also perform the analysis of this data. **Additional soils information including a swamp profile, soil chemical analysis, and muck probes will be required for the wetland and pond adjacent to Farm Lane north of the CN Railroad lines.** See Consultant Manual Attachment D for details.

CORING FREQUENCY:

No less than 1 core every 200 feet staggered between the northbound and southbound lanes of Farm Lane. Total - approximately 20 cores.

Approximately 20 total cores evenly spaced throughout the project limits in all lanes including turn lanes.

Where granular soils are encountered, samples should be obtained and tested to determine whether the soil meets requirements for granular material class II or III per the 2003 Standard Specifications for Construction.

Soil borings will also be required for all temporary railroad track run-arounds. It is estimated that the number of borings required will be 40 with an estimated spacing of 300 feet. The number of borings will depend on the soil types and each railroad's requirements.

BORING FREQUENCY AND DEPTH:

All borings shall be drilled to a depth of 5 feet below the estimated final grade elevations. To minimize utility concerns, the use of a hand auger is recommended

M. P/PMS TASK 3522 – CONDUCT HYDRAULIC/HYDROLOGIC ANALYSIS FOR STORM WATER CONVEYANCE

See Consultant Manual Attachment D for details.

MAINTAINING TRAFFIC DETAILS:

Farm Lane vehicular traffic will be detoured during construction. The consultant shall detail all necessary signing, arrow boards, and barricades required to maintain detoured vehicular traffic during construction of this project.

Service Road is to be kept open to vehicular traffic to the extent possible during construction. The project manager and MSU shall be notified eight week in advance of any closure.

Maintaining rail traffic at each of the two crossings will be required. It may be necessary for the consultant to design and detail temporary tracks at each of the two crossings to accommodate rail traffic during construction.

N. P/PMS TASK 3530 - CONDUCT FOUNDATION STRUCTURE INVESTIGATION

See Consultant Manual Attachment D for details.

- O. **P/PMS TASK 3540 - DEVELOP CONSTRUCTION ZONE TRAFFIC CONTROL PLAN**
See Consultant Manual Attachment D for details.
- P. **P/PMS TASK 3552 - DEVELOP PRELIMINARY PERMANENT PAVEMENT MARKING PLAN**
See Consultant Manual Attachment D for details.
- Q. **P/PMS TASK 3553 - DEVELOP PRELIMINARY NON - FREEWAY SIGNING PLAN**
See Consultant Manual Attachment D for details.
- R. **P/PMS TASK 3570 - PREPARE PRELIMINARY STRUCTURE PLANS**
See Consultant Manual Attachment D for details.
- S. **P/PMS TASK 3580 - DEVELOP PRELIMINARY PLANS**
See Consultant Manual Attachment D for details.
- T. **P/PMS TASK 3590 - REVIEW PRELIMINARY PLANS (THE PLAN REVIEW)**
See Consultant Manual Attachment D for details.
- U. **P/PMS TASK 3670 - DEVELOP MUNICIPAL UTILITY PLANS**
See Consultant Manual Attachment D for details.
- V. **P/PMS TASK 3675 - DEVELOP ELECTRICAL PLANS**
See Consultant Manual Attachment D for details.
- W. **P/PMS TASK 3680 – OBTAIN REQUIRED MUNICIPAL UTILITY PERMITS**
See Consultant Manual Attachment D for details. (If watermain or sanitary sewer affected)
- X. **P/PMS TASK 3822 - COMPLETE PERMANENT PAVEMENT MARKING PLAN**
See Consultant Manual Attachment D for details.
- Y. **P/PMS TASK 3823 - COMPLETE NON-FREEWAY SIGNING PLAN**
See Consultant Manual Attachment D for details.
- Z. **P/PMS TASK 3830 - COMPLETE THE CONSTRUCTION ZONE TRAFFIC CONTROL PLAN**
See Consultant Manual Attachment D for details.
- AA. **P/PMS TASK 3840 - DEVELOP FINAL PLANS AND SPECIFICATIONS**
See Consultant Manual Attachment D for details.

AB. P/PMS TASK 3850 - DEVELOP STRUCTURE FINAL PLANS AND SPECIFICATIONS

See Consultant Manual Attachment D for details.

AC. P/PMS TASK 3870 - HOLD OMISSIONS/ERRORS CHECK (OEC) MEETING

See Consultant Manual Attachment D for details.

The interval for plotting cross-sections and developing the grade book shall be 100 feet.
The intervals for critical areas shall be 50 feet.

AD. P/PMS TASK 5010 - CONSTRUCTION PHASE ENGINEERING AND ASSISTANCE

The Consultant may be required to provide Design Services during the construction phase of this project. If Construction Assistance is required, then a separate authorization for those services will be issued.

AE. If excavation is required, submit the excavation locations which may contain contamination. Project Manager then can proceed in requesting a Preliminary Project Assessment (PPA).

AF. The Consultant shall be required to prepare and submit a CPM network for the construction of this project. See Attachment F for details

AG. The Consultant representative shall record and submit type-written minutes for all project related meetings to the MDOT Project Manager within two weeks of the meeting. The Consultant shall also distribute the minutes to all meeting attendees. MDOT will provide and distribute official meeting minutes for the Base Plan Review Meeting (if meeting necessary) and The Plan Review Meeting.

AH. Attend information meetings (i.e., public hearings, open houses, etc.) with the public and public officials to assist in responding to concerns and questions. May require the preparation of displays such as maps, marked-up plans, etc.

AI. Prepare and submit any information, calculations, hydraulic studies, or drawings required by MDOT for acquiring any permit (ie. NPDES, DEQ, etc), approvals (ie. county drain commission) and related mitigation. MDOT will submit permit requests.

AJ. Attend any project-related meetings as directed by the MDOT Project Manager.

AK. The Consultant shall assist in the review of driveway and utility permit requests, incorporate the information in the design plans and respond within 2 weeks from receipt of the permit.

AL. The MDOT Project Manager shall be the official MDOT contact person for the Consultant **and shall be made aware of all communications regarding this project.**

The Consultant must either address or send a copy of all correspondence to the MDOT Project Manager. This includes all Subcontractor correspondence and verbal contact records.

- AM. The Consultant shall contact the MDOT Project Manager whenever discoveries or design alternatives have the potential to require changes in the scope, limits, quantities, costs, or right-of-way of the project.
- AN. The Consultant shall work with the MDOT Project Manager, Michigan State University, CN Railroad, and CSX Railroad to create executable agreements between Michigan State University and each railroad for work within the railroads' right-of-way and the maintenance of each railroad structure.

XIII. MDOT RESPONSIBILITIES (GENERAL)

- A. Schedule and/or conduct the following:
 - 1. Project related meetings.
 - 2. The Plan Review
 - 3. Utility Meetings.
 - 4. Quantity summary sheets and final item cost estimates.
 - 5. Packaging of plans and proposal.
- B. Furnish Special Details and pertinent reference materials.
- C. Furnish prints of an example of a similar project and old plans of the area, if available.
- D. Supply information on existing pavement structure as necessary.
- E. Coordinate utility information requests and any necessary utility relocations.
- F. Furnish pavement design
- G. Furnish diskette of file and instructions for the MDOT **Stand Alone Project Worksheet (SAPW) or MERL, if needed.**

ATTACHMENT A

SURVEY SCOPE OF WORK

Survey Limits: As needed for Design, Right of Way, and Construction. A description detailing length, width and cross roads must be included in the Survey Work Plan. The survey will also need to include the railroad top of rail elevations and other data relating to the area where track work will be proposed. The railroads will want to see the track profiles of the existing and proposed rail elevations.

NOTES: The Consultant shall discuss the scope of this survey with Michigan State University and the project manager before submitting a priced proposal.

The Consultant surveyor must contact Michigan State University and the project manager for work restrictions in the project area prior to submitting a proposal.

A **detailed Survey Work Plan must** be included in the project proposal. A **spreadsheet estimate** of hours by specific survey task such as traversing, leveling, mapping, etc. **must** be included in the **priced proposal**.

It is the responsibility of the Professional Surveyor to safeguard all corners of the United States Public Land Survey System, published Geodetic Control and any other Property Controlling corners that may be in danger of being destroyed by the proposed construction project.

GENERAL REQUIREMENTS:

1. Surveys must comply with **all Michigan law** relative to land surveying.
2. Surveys must be done under the **direct supervision** of a Professional Surveyor licensed to practice in the State of Michigan.
3. Work in any of the following categories of survey: Road Design, Structure, Hydraulic, Right-of-Way, and/or Ground Control (Photogrammetric) must be completed by a survey firm which is pre-qualified by MDOT for that category.
4. Surveys must meet all requirements of the Michigan Department of Transportation (MDOT) Design Surveys *Standards of Practice* dated April 1, 1998, the MDOT Design Survey Manual on-line, and the MDOT RTK guidelines. Please contact the Design Survey office to clarify any specific questions regarding these standards.
5. Consultants must obtain all necessary permits required to perform this survey on any

public and/or private property, including an up-to-date permit from the MDOT Utilities Coordination and Permits Section.

6. Prior to performing the survey, the Consultant must contact all landowners upon whose lands they will enter. The contact may be personal, phone or letter, but must be documented. This notice must include the reasons for the survey on private land, the approximate time the survey is to take place, the extent of the survey including potential brush cutting (which must be minimized), and an MDOT contact person (the MDOT Project Manager or designate).
7. The Consultant must contact any and all Railroads prior to commencing field survey on railroad property. **The cost for any permit, flaggers and/or training that is required by the Railroad will be considered as a direct cost, but only if included in the Consultant's priced proposal.**
8. The consultant must adhere to all applicable OSHA and MIOSHA safety standards, including the appropriate traffic signs for the activities and conditions for this job.
9. Consultants are responsible for a comprehensive and conscientious research of all records, including **MSU/Ingham County** records, essential for the completion of this project.
10. Measurements, stationing, recorded data, and computations must be in International Feet, unless specified otherwise by the Project Manager.
11. It is appropriate to utilize the same horizontal and vertical datums used in recent and/or future projects in the "corridor." Otherwise, coordinate values shall be based upon the Michigan State Plane coordinate system NAD83. A local project coordinate control system is acceptable only on approval of the MDOT Project Manager or Survey Consultant Coordinator. All elevations must be based upon the North American Vertical Datum of 1988 (NAVD88) if control is available within four miles. If not, existing MDOT plan datum is acceptable. **Other datums must be approved by the MDOT Design Division, Survey Consultant Coordinator.** The datums to be used must be clearly stated in the Survey Work Plan. A preliminary submittal of the adjusted Horizontal and Vertical control for the project may be submitted to the MDOT Survey Consultant Coordinator for review and acceptance as soon as it is available.
12. The survey notes must be submitted to the Design Survey Unit in 10" by 12" divided portfolios with flap covers. As many portfolios should be used as are needed to contain all of the required documents and Compact Discs (CD's). **Duplicate CD's must be included in the portfolio, with one set labeled "Region Surveyor".**
13. Each portfolio must be labeled on the outside as in the following example:

Survey Notes for:

Route, Location and Project Limits [I-94 under Beaubien Street]

Control Section [S06 of 82024] Job Number [45197D] Date [*of submittal*]

By [*Name of Firm*]

Michigan Professional Surveyor [] License # []

14. Each submittal is to be divided into six sections. These sections are to be labeled as follows: **Administrative, Alignment, Control, Property, Mapping, and Miscellaneous.**
15. **All data**, whether electronic or paper, **must be recorded on non-rewritable Compact Discs** (CD's). All paper files, including MicroStation files, must be scanned and/or converted to Adobe Acrobat .PDF format. CD's must be organized in the same manner as the portfolio, such as by Administrative section, Control section, etc. A Table of Contents in Adobe Acrobat format is required that has all .PDF pages of the CD bookmarked/linked so each place in the .PDF archive can be accessed with a single click of the computer mouse. Specified format files such as ASCII text, CAiCE and MicroStation must have separate access. CD's must be labeled with the control section, job number, data type and file names.
16. Each category of survey must be packaged separately (i.e., Structure surveys separate from Road surveys and Hydraulic surveys). All sheets in a portfolio must be marked with the control section and job number. CD's must be labeled with the control section, job number, data type and file names.
17. The Consultant representative shall record and submit typewritten minutes for all project related meetings to the MDOT Project Manager within two weeks of the meeting. The Consultant shall also distribute the minutes to all meeting attendees.
18. The MDOT Project Manager is the official contact for the Consultant. The Consultant must send a copy of all project correspondence to the MDOT Project Manager. The MDOT Project Manager shall be made aware of all communications regarding this project. Any survey related questions, in regard to this project, should be directed to a Survey Consultant Coordinator or MDOT Region Surveyor.

At the completion of this survey for this project, legible copies of all field survey notes, all electronic data, and all research records obtained for this project will be considered the property of MDOT and **must be sent to** the MDOT, Design Support Area, Survey Consultant Coordinator, P.O. Box 30050, Lansing, MI 48909. Please use MDOT's Form 222(5/01) entitled "SURVEY NOTES: RECEIPT AND TRANSMITTAL" for all transmittals. A copy of this transmittal form must also be sent to the MDOT Project Manager for Design.

Acceptance of this survey by the MDOT Survey Consultant Coordinator and/or the MDOT Project Manager does not relieve the Consultant of any liability for the content of the survey.

WORK RESTRICTIONS

The Selected Consultant is advised to consult with the Canadian National Railroad and the CSX Railroad for flagging rates and to discuss Traffic Control scenarios with Michigan State University and the project manager prior to submitting a priced proposal.

No work shall be performed or lane closures allowed during any Holiday period, as defined by the MDOT Project Manager or representative specifically designated by the Project Manager. The Consultant must call Michigan State University and the project manager before beginning work to inform them of surveying activity in the area. Michigan State University and the project manager must be notified at least two weeks prior to lane closures so advance notice can be posted on the Web site.

Traffic shall be maintained by the Consultant throughout the project in accordance with Sections 812, 922, 103.05 and 103.06 of the *Standard Specifications for Construction*, 2003 edition, www.mdot.state.mi.us/specbook/, and Supplemental Specification 03SS001(2) Errata to the 2003 Standard Specifications and all other supplemental specifications currently in effect against the Standard Specifications for Construction. All traffic control devices shall conform to the current edition, as revised, of the *Michigan Manual of Uniform Traffic Control Devices* (MMUTCD). All warning signs for maintenance of traffic used on this project shall be fabricated with prismatic retro-reflective sheeting, and shall be set up five feet above ground.

The Consultant shall use MDOT standard “maintaining traffic” typicals for any and all closures.

Typical MDOT traffic control diagrams are available on line at www.mdot.state.mi.us/tands/plans.cfm

FIELD SURVEY

The purpose of the field survey is to obtain all information and data required by the project design engineer, to leave control in the field for future construction staking, and to provide a sufficient history of the area to enable the MDOT Design Survey Unit to perform dependable surveys in the future. The Consultant surveyor must discuss the scope of this survey with the project design engineer before initiating any work on this project. Notes of this meeting and a detailed Survey Work Plan with an estimate of hours broken down by specific survey task must be submitted to the MDOT Project Manager and Survey Consultant Coordinator within two weeks of this meeting.

GOVERNMENT CORNERS

Any PLSS corners within the project limits must be recovered or established and tied to the project coordinate system.

All PLSS corners must be recorded in accordance with PA 74 of 1970, as amended, and all applicable administrative rules. A copy of each recorded Land Corner Recordation Certificate must be submitted to the MDOT Design Survey Office as part of the final report. All PLSS corners located in hard surface roads must be protected by a monument box, regardless of impending construction. The consultant shall provide to the Survey Project Manager a list of any affected Government or Property Controlling Corners in the detailed work plan for discussion or approval.

The Consultant surveyor must contact the County Remonumentation Representative prior to beginning work on the project to inform him of proposed corner perpetuation activities, and to obtain information pertinent to PLSS corners and/or property controlling corners affected by project construction.

ALIGNMENT

Since most existing alignment points locate and define the boundary between the public Right of Way and private ownership, alignment points are considered Property Controlling Corners and must be recovered and recorded in accordance with PA 74 of 1970, as amended, and all applicable administrative rules. A copy of each recorded Land Corner Recordation Certificate must be submitted in the Property Section of the final portfolio.

POST SURVEY CLEAN-UP

Once the survey is complete, all stakes must be removed to aid the maintenance crews and adjacent property owners. All benchmarks and control points and their witnesses must remain in place.

FINAL REPORT: DELIVERABLES

The final report for this project shall include:

1. In the first pocket of the portfolio, labeled **ADMINISTRATIVE**, the following will appear:
 - a. MDOT's Form 222(5/01) entitled "SURVEY NOTES: RECEIPT AND TRANSMITTAL"
 - b. The project's Professional Surveyor's Report on company letterhead consisting of:
 - i) A comprehensive synopsis of the work performed on this project, signed **and sealed** by the project's Professional Surveyor.
 - ii) The source and methods used to establish the project horizontal and vertical control and alignment(s) for this project.
 - iii) A detailed explanation of anything discovered during the survey of this project that may create a problem for the designer or another surveyor.
 - c. CD with all documents scanned or converted into PDF files. Each page must be inserted in a master PDF file and bookmarked for easy retrieval. An example can be provided upon request.

2. In the second pocket of the portfolio, labeled **ALIGNMENT**, the following will appear:
 - a. A sketch or CADD drawing of the alignment(s):
 - i) A statement defining the alignment(s) as **best-fit or legal**
 - ii) Stationing, source of stationing, and station equation to existing stationing
 - iii) Horizontal coordinates
 - iv) Curve data
 - v) Alignment points found or set
 - vi) Control points
 - vii) Reference lines and angles of crossing (if appropriate)
 - viii) Government corners
 - b. Witness list for the alignment points found or set, which shows coordinates, stationing and four witnesses for each alignment point
 - c. LCRC's for alignment points found.
3. In the third pocket of the portfolio, labeled **CONTROL**, the following will appear:
 - a. Documentation of horizontal and vertical datum sources.
 - b. Least squares adjustments for the horizontal and vertical control.
 - c. Text files in ASCII format, hard copy and on CD, which contain the witness lists for the horizontal alignment ties, horizontal control points, benchmarks and government corners.
4. In the fourth pocket of the portfolio, labeled **PROPERTY**, the following will appear:
 - a. Tax maps and descriptions with owner names, addresses and phone numbers if Right of Way is to be acquired
 - b. Property ties to the project coordinate system with maps, plats, and recorded surveys marked with point numbers, if Right of Way is to be acquired.
 - c. Legible **recorded** copies of all Land Corner Recordation Certificates (LCRC) filed for the government corners (PLSS corners and Property Controlling Corners) used for computations and/or in danger of obliteration by impending construction.
5. In the fifth pocket of the portfolio, labeled **MAPPING**, the following will appear:
 - a. Mapping file in MicroStation format, and converted to .PDF format. No hardcopy.
 - b. All field survey notes, electronic data and research records obtained for the project. It is not necessary to submit electronic raw survey data in hardcopy form.
 - c. All supporting and supplemental information or data.
6. In the sixth pocket of the portfolio, labeled **MISCELLANEOUS**, the following will appear:
 - a. Any photographs taken for clarity of an area
 - b. Any newspaper clippings related to the project
 - c. Any information not covered in this scope that will be of benefit to the designer or another surveyor

General Notes

- a. It is the responsibility of the consultant to insure that all electronic files submitted

- to MDOT conform to the required format and that all documents are legible.
- b. The consultant must organize and label the various sections of the portfolio as required by the Standards of Practice for MDOT Design Surveys dated April 1, 1998.
 - c. It is desirable to limit paper and to include as much electronic data as possible on Compact Disc, including scanned items, to facilitate future electronic storage and transmission of survey data. **Duplicate CD's must be included in the portfolio, with one set labeled "Region Surveyor".**

ATTACHMENT B
HPSL 33010 – 87316C
Farm Lane on the campus of Michigan State University

SCOPE OF WORK FOR DRAINAGE STUDY

The consultant is to conduct a site investigation of the drainage within the limits of the project. The purpose of this study is to determine where hydraulic analyses and/or surveys are required. If further hydraulic analyses and/or surveys are required, then MDOT will issue a separate authorization for those services.

Work Steps:

1. Prepare a typed report summarizing the drainage affected by the project. For every culvert carrying natural drainage within the MSU Right-of-Way, provide the following information:
 - a. Stream name
 - b. Exact location of the culvert, including Section, Town, Range, and Township
 - c. Size, type, and condition of culvert
 - d. Any evidence of scour or erosion
 - e. Any evidence that the structure is undersized
 - f. Any county drains
 - g. Photographs of the upstream face, downstream face, looking upstream, and looking downstream, as well as any drainage structures, buildings, or farmland that may affect or be affected by the culvert
 - h. Drainage area, including delineation on a USGS quadrangle map (or local contour map, if more up-to-date)
 - i. Type of work proposed, including existing and proposed lengths
2. The report must include any other effects on the drainage; for example, a raise in road grade or widening.
3. Submit the drainage study to the MDOT Project Manager for review and approval by the Design Engineer - Hydraulics/Hydrology.
4. Receive any items returned by the MDOT Project Manager as incomplete or deficient.
5. Make necessary changes and resubmit the incomplete items, including a written response to all comments.

ATTACHMENT D
HPSL 33010 – 87316C
Farm Lane on the campus of Michigan State University

MDOT DESIGN CONSULTANT MANUAL

The MDOT Design Consultant Manual is now listed on the MDOT Bulletin Board System and can be found under the PPMS Library (File name = Combined_Manual.pdf). An index of the latest version of the task descriptions along with any revisions will be included as part of this authorization.

CONSULTANTS are still encouraged to review and provide comment on the draft pages from the MDOT Design Consultant Manual. Please send suggestions to:

Kathy Hulley
Supervising Engineer
Operations Contract Support
Michigan Department of Transportation
425 West Ottawa
P.O. Box 30050
Lansing, MI 48909

ATTACHMENT E
BRIDGE SCOPE OF WORK

X01 of 33-10-21 CSX Railroad over Farm Lane
X02 of 33-10-21 CN Railroad over Farm Lane

I. Description of Work

The work shall consist of a design for new railroad structures at two locations over Farm Lane. Each location involves two sets of railroad tracks. An engineering report with a detailed structure study has been completed for this project. It is anticipated that the consultant hired for this project will begin at the preliminary design stage of the project.

II. Consultant Responsibilities:

1. A complete design for a bridge at each of the above locations. Farm Lane vehicular traffic will be detoured during construction. Railroad traffic must be maintained during construction. The use of run-around track(s) may be necessary.
 2. Preparation of both contract plans and bid item quantities.
 3. Preparation of any specifications and/or special provisions required to supplement MDOT's Standard Specifications for Construction and the American Railway Engineering and Maintenance of Way Association specifications.
 4. Soil borings of sufficient depth and number and a geotechnical analysis to perform the foundation designs and any temporary track run-arounds. For scope of work statement for geotechnical services, see Appendix 5.03.03 A.1.e MDOT bridge Design Manual.
 5. Preparation of permit requests. (MDOT will submit these)
 6. Necessary contacts with concerned agencies: e.g. DEQ, municipalities, utilities, railroad, State Historic Commission. All contacts are to be documented. MDOT is to receive copies of minutes, record of conversations or memos documenting all contacts.
 7. Participation in meetings and field reviews at the site.
 8. Solutions to any unique problems, e.g. utility interference, staging for part width construction.
 9. Provide plans and specifications for maintaining traffic during construction.
 10. Prepare and submit any information, calculations, hydraulic studies, or drawings required by MDOT for acquiring permits (i.e. NPDES), approvals (i.e. county drain commission) and related mitigation. MDOT will submit permit requests.
 11. Prepare and submit the two railroad agreements: one between Michigan State University and Canadian National Railroad and one between Michigan State University and CSX Railroad. **MDOT will furnish a sample as needed.**
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H:\0 Selections\FY 06 Selections\06 May\MDOT_RFP_Design_Lansing_87316C.doc

Work shall conform to current MDOT, AREMA, FHWA, AASHTO, CN Railroad, and CSX Railroad practices, guidelines, policies, and standards (i.e., Roadside Design Guide, A Policy on Geometric Design of Highways and Streets, Michigan Manual of Uniform Traffic Control Devices, etc.)

The plans shall be submitted to MDOT as follows:

1. Preliminary Plans consisting of a General Plan of Site and a General Plan of Structure of the proposed work and Log of Borings. Preliminary Plans shall be accompanied by an estimate of cost based on the quantities of major pay items shown on the plans.
2. Prefinal plans consisting of final plans that are approximately 90% complete and any special provisions and supplemental specifications that may be required.
3. Final plans and Contract Quantities and any special provisions or supplemental specifications that may be required.

All work shall conform to AASHTO specifications, AREMA specifications, MDOT specifications, MDOT design and detailing practices, and CN and CSX railroad specifications. All submittals to MDOT shall meet the attached quality assurance document. The Consultant shall maintain office records, submit monthly progress reports, and submit vouchers with their billings. The consultant is advised that MDOT considers plans 30% complete when the preliminary plans are distributed, and 95% complete when final plans are submitted for review. The consultant is to show the location and names of all existing utilities within the limits of the proposed work. The consultant will attend any utility and railroad meetings called to insure that the concerns are addressed on the plans involving utilities and railroads.

All submittals to MDOT shall be dated and identified by structure number, control section, job number including phase, MDOT contract number, route and location.

All minutes for project related meetings shall be typewritten, recorded, and submitted within two weeks of the meeting.

A file containing project related correspondence, design, and any information resulting from research shall be submitted to MDOT with the final mylars.

MDOT WILL PROVIDE:

Standard detail sheets

Existing plans

ATTACHMENT F
HPSL 33010 – 87316C
Farm Lane on the campus of Michigan State University

CONSTRUCTION CRITICAL PATH NETWORKS

I. INTRODUCTION

The Consultant is required to submit a Construction Critical Path Network at various points in the design process. Refer to the following:

P/PMS TASK 3580 - DEVELOP PRELIMINARY PLANS

P/PMS TASK 3830 - COMPLETE THE CONSTRUCTION ZONE TRAFFIC CONTROL PLAN

P/PMS TASK 3840 - DEVELOP FINAL PLANS AND SPECIFICATIONS

Construction Critical Path Networks are often needed to develop the progress schedule for a project. They are required on any project designated to include an Incentive/Disincentive or Special Liquidated Damages clause. Construction Critical Path Networks are also recommended for projects with the following characteristics:

1. New construction.
2. Major reconstruction or rehabilitation on an existing roadway that will severely disrupt traffic.
3. Unique or experimental work.
4. More than one construction season.
5. Complex staging(multiple stages with traffic shifts).

As noted in MDOT's Construction and Technology Instructional Memorandum 1997-7, Progress Schedule Determinations/Critical Path Rates,

A preparation of a Critical Path is a requirement on all consultant-designed projects, regardless of the project type or complexity.

The MDOT Resident Engineer assigned to the project should be consulted when developing Construction Critical Path Networks.

MDOT requires the precedence diagramming method. The Consultant will submit this network in MPX version 4.0.

II. NETWORK DEVELOPMENT

The network will be defined using the following steps.

1. Activity definition.
2. Activity sequencing.
3. Duration estimation.
4. Schedule development.

1. ACTIVITY DEFINITION

The Consultant will define the specific activities in enough detail so that the proper objectives will be met. The Consultant must identify assumptions (those factors considered true, real or certain). Supporting detail for the activities should be documented and organized as needed to simplify the review of the activities by MDOT personnel.

The Construction Critical Path Network must start with the Letting Date as the first activity and terminate with the End of Project as the finish activity.

A sufficient number of activities will be required with sufficient detail so that the controlling construction operation(s) may be identified. Notation on each activity shall include a brief work description and activity time duration.

2. ACTIVITY SEQUENCING

Activity sequencing involves identifying and documenting interactivity dependencies. The Consultant must sequence activities accurately to support later development of a realistic and achievable construction schedule. Two types of dependencies should be considered. Mandatory dependencies are inherent in the nature of the work being done, such as construction sequencing. Discretionary dependencies are based on a knowledge of the work to be done. Constraints are used to show how the activities relate to each. The Consultant must include documentation supporting all discretionary dependencies used in the project. All activities must lead to another activity. Only Start to Start, Finish to Finish and Finish to Start relationships will be allowed. All logic shall show how the given activity is dependent on its preceding activities.

3. DURATION ESTIMATION

After the Consultant has sequenced the activities, the Consultant should determine the activity duration. Activity duration estimating involves assessing the number of work periods likely to be needed to accomplish each activity. Duration (working days): No activity will have a duration greater than 20 working days unless approved by the Engineer. Activities that will be allowed to exceed 20 working days include, but are not limited to, working drawing approvals or other activities not under the control of the

Contractor. If requested by the Engineer, the Consultant shall explain the reasonableness of activity time durations. The approved MDOT production rates will be used in estimating activity duration. These are available in the Supplemental Information section of this attachment. The Consultant must document and submit all assumptions made during the duration estimation to MDOT.

4. SCHEDULE DEVELOPMENT

The activity sequencing, duration estimations and the calendars are combined to create the construction schedule. During the development of the schedule the Consultant will verify:

1. The required schedule to build the project.
2. The constructability of the project.
3. If the maintaining traffic scheme will work.
4. If seasonal limitations will affect the construction.
5. Any other project specific considerations.

The MDOT Calendars will be used by the Consultant in developing the network. The calendars are based on a 4, 5 or 6 day work week. The MDOT Calendars are included in the Supplemental Information section of this attachment.

At this point there should be no negative float in the network. If there is, there is an error in the network and the error must be corrected before network submittal.

All summary tasks shall be removed prior to submittal to MDOT Project Manager

III. DELIVERABLES

After this final step the design consultant will submit the finished CPM schedule to MDOT

1. Documents

- A. 11" x 17" plot of the network. The critical path shall be clearly identified on the plot. A larger plot may be required for complex networks.
- B. Work Day / Completion Date Determination Worksheet.
- C. List of any other assumptions or controlling factors used in creating the network. For example, permit or maintaining traffic restrictions.

2. Electronic Format

This section sets the requirements for the electronic submittal of the Consultant's Construction Network. All networks shall be submitted on a CD[(or via E-mail) using one of the following formats:

- A. **Standard Electronic Media Format:** This is a standard ASCII text file containing the data elements below, in the order specified. This file can be created using any text editor or word processing application (i.e., MS-Word, WordPerfect, Notepad, Write) but must be saved as an ASCII file.

The **first line** will provide a descriptive header describing the submittal and containing:

Control Section
Job Number
Route
Consultant name
Date of Submittal

The next line will be **blank**, followed by multiple data lines.

Each **data line** will contain one record pertaining to one task of the job. Separate data fields by a comma. Fields within each task line are as follows:

(Note that the term "task" is synonymous with "activity." Leave fields that are not required blank)

- (1) Task # (Job # followed by a hyphen followed by this task's unique 4 digit task number. This is the Preceding Event Activity Code)
- (2) Description of Task, Milestone or Hammock, blank if this record is a constraint
- (3) Calendar (see attached list)
- (4) Duration of task, blank for constraints
- (5) Task # of the next task (Succeeding Event) - leave blank if this record is not a constraint or hammock
- (6) Type of constraint (FS, SS, FF) - leave blank if this record is not a constraint.
- (7) Delay, if required
- (8) Original "Baseline" Start Date
- (9) Original "Baseline" Finish Date
- (10) Current (forecast) Start Date (early start)
- (11) Current (forecast) Finish Date (early finish)
- (12) Estimated completion date (if different from early start + current duration)
- (13) Late Start Date
- (14) Late Finish Date
- (15) Actual Start Date
- (16) Actual Finish Date

Example - each line contains the following:

Task # (preceding event), Description, Calendar, Duration, Next Task # (succeeding event), Constraint Type, Delay, Baseline Start, Baseline Finish, Early Start, Early Finish, Estimated Completion Date, Late Start, Late Finish, Actual Start, Actual Finish, Total Float.

- B. **Primavera Project Planner(P3) 2.0 Export Procedure:** Users who have Primavera Project Planner(P3) version 2.0 can automatically create a export file by following the below export procedure below. **Users having an older version of Primavera may use the applications export feature only if they are able to include all the data elements listed in the version 2.0 format.**

1. Choose Tools, Project Utilities, **EXPORT**
2. Click **ADD**, Then click **OK** to accept the next sequential ID number, or type a unique number to identify the specifications and click **OK**
3. Enter a description for the specification in the Title field
4. Specify data items to export

Activities

- Select **Contents of List**
- Use the Description column to specify which data items to export
- To add items, click the right mouse button in the Description column and choose from the list. Suggested Items include: **Activity ID, Activity Description, Actual Start, Actual Finish, Calendar ID, Early Start, Early Finish, Late Start, Late Finish, Original Duration.**
- Select **All Current, All Target, or All Target2**
- Set Description Length to 48

OR

Constraints

- Select **Successor relationships** - Choose this option to export Activity IDs and their corresponding successors only. Lags and relationship types will also be displayed in this output file.

5. Click **FORMAT** in Export Dialog Box
6. In the Output file section, enter a new name and path (ex. A:\actexp or A:\conexp). Do not include a file extension.
7. In the type field, click the minimize button and choose the **[.PRN] - ASCII** file format for the output file.
8. Select **CALENDAR** for Date Format
9. Set ASCII Output Field Separation to **1** and Blank column width to **0**

10. Click **RUN**
11. In the Output Options dialog box, click on **OK**

NOTE: A COMPLETED FILE EXPORT WILL CONSIST OF 2 EXPORT FILES (ACTIVITIES & CONSTRAINTS)

- C. **Microsoft Project Export Procedure:** Users of Microsoft Project Version 4.0 and above can create a Microsoft Project Exchange (MPX) file by following the procedure below.
1. Choose File, Save As from the main menu
 2. In the Save File as Type box Select **MPX 4.0**
 3. On the drive box select a: or whichever drive is the 3.5" Floppy drive
 4. Click on **OK**
- This saves the file in MPX format.
- D. **Primavera Sure Track:** Users of Sure Track Version 2.0 and above can create a Microsoft Project Exchange (MPX) file by following the procedure below.
1. Choose File, Save As from the main menu
 2. In the filename box input a filename
 3. In the Save File as Type box Select **MPX**
 4. On the drive box select a: or whichever drive is the 3.5" Floppy drive
 5. Click on **OK**
- This saves the file in MPX format
- E. **Scitor Project Scheduler 7 Export Procedure:** Users of Scitor Project Scheduler Version 7 and above can create a Microsoft Project Exchange (MPX) file by following the procedure below.
1. Choose File, Save As from the main menu
 2. In filename box select a filename
 3. In the Save File as Type box Select **MPX**
 4. On the drive box select a: or whichever drive is the 3.5" Floppy drive
 5. Click on **OK**
- This saves the file in MPX format
- F. **Export Files with Other Scheduling Applications:** Most scheduling packages have export functions similar to those described above. If the Consultant chooses to use packages with export capabilities, they shall include all items listed in the Standard Media Format in a text or ASCII type file.

IV. SUPPLEMENTAL INFORMATION

A. MDOT CRITICAL PATH-CONSTRUCTION TIME ESTIMATES

Drainage

Cross Culverts

Rural Highways	130 ft/day
Expressways	165 ft/day
Large Headwalls	5 days/unit
Slab or Box Culverts	5 days/pour
Plowed in Edge Drain(production type project)	14,750 ft/day
Open Graded Underdrain(production type project)	3950 ft/day

Sewers

0m-5m(up to 1500mm)	130 ft/day
0m-5m(over 1500mm)	80 ft/day
5m-over(up to 1500mm)	80 ft/day
5m-over(over 1500mm)	65 ft/day
Jacked-in-place	40 ft/day
including excavation pit & set up	min. 5 days

Tunnels

hand mining	25 ft/day
machine mining	65 ft/day
including excavation pit & set up	min. 5 days

Manholes

3 units/day

Catch Basin

4 units/day

Utilities

Water Main(up to 400mm)	325 ft/day
Flushing, Testing & Chlorination	4 days
Water Main(500mm-1050mm)	80 ft/day
Flushing, Testing & Chlorination	5 days
Order & Deliver 600 mm HP Water Main	50 days/order
Gas Lines	325 ft/day

Earthwork and Grading

	Metro Exp	Rural
Embankment(CIP)	2000 cyd/day	7000 cyd/day
Excavation and/or Embankment(Freeway)	2000 cyd/day	12000 cyd/day
Excavation and/or Embankment(Reconstruction)	1000 cyd/day	5000 cyd/day
Embankment(Lightweight Fill)	390 cyd/day	800 cyd/day
Muck(Excavated Waste & Backfill)		2000 cyd/day
Excavation(Widening)		2000 ft/day
Grading(G & DS)		2500 ft/day
Subbase and Selected Subbase(up to 7.4m)		2000 ft/day
Subbase and Selected Subbase(7.4 m & over)		1500 ft/day

Subgrade Undercut & Backfill	2000 cyd/day
Subbase & Open-Graded Drainage Course	1500 ft/day

Surfacing

Concrete Pavement(7.3m)	1500 ft/day
Including Forming & Curing	min. 7 days
Bituminous Pavement(7.3m)	4000 ft/day/course
Concrete Ramps(4.9m)	1000 ft/day
Including Forming & Curing	min. 7 days
Curb(1 side)	2500 ft/day
Concrete Shoulder-Median	1500 syd/day
Bituminous Shoulders(1 side per course)	2500 ft/day
Sidewalk	200 syd/day
Sidewalk(Patching)	75 syd/day

Structures

Sheeting(Shallow)	100 ft/day
General Excavation at Bridge Site	1000 cyd/day
Excavation for Substructure(Footings)	1 unit/day
Piles(12m)	15 piles/day
Substructure(Piers & Abutments)	5 days/unit
Order and Delivery of Beams	
Plate Girders	100-120 days/order
Rolled Beams	90-120 days/order
Concrete Beams	50 days/order
Erection of Structural Steel	3 days/span

Bridge Decks

Form & Place Reinforcement(60m Structure)	15 days
Pour Deck Slab(1 1/5 days/pour)	2 days/span
Cure	14 days
2 Course Bridge Decks	
Add 9 days for Second Course Latex	
Add 12 days for Second Course Low Slump	
Sidewalks and Railings	
Sidewalks and Parapets	5 days/span
Slip Formed Barriers	2 days/span
Clean Up	10 days
Pedestrian Fencing	
Shop Plan Approval & Fabrication	1-2 months
Erection	1 week/bridge

Rip Rap Placement

Bucket Dumped	500 cyd/day
---------------	-------------

Bucket Dumped and Hand Finished	170-685 cyd/day
Retaining Walls	1 Panel/day min. 10 days
Railroad Structures	
Grade Temporary Runaround	1000 cyd/day
Ballast, Ties & Track	165 ft/day
Place Deck Plates	5 days/span
Waterproof, Shotcrete & Mastic	5 days/span
Railroad Crossing Reconstruction	10-15 work days (depends on if concrete base is involved)
Temporary Railroad Structures	
Order & Deliver Steel	55 days/order
Erect Steel	1 day/span
Ties and Track	3 days/span
Pumphouse	
Structure	10 days/ft
Order & Deliver Electrical & Mechanical Equipment	90 days
Install Electrical & Mechanical Equipment	30 days
Miscellaneous	
Removing Old Pavement	200 ft/day
Removing Old Pavement for Recycling(7.3m)	1500 ft/day
Crushing Old Concrete for 6A or OGDC	1500 tons/day
Removing Trees(Urban)	15 units/day
Removing Trees(Rural)	30 units/day
Removing Concrete Pavement	540 syd/day
Removing Sidewalk	300 syd/day
Removing Curb & Gutter	1500 ft/day
Removing Bitumin.ous Surface	2000 syd/day
Conditioning Aggregate	3000 ft/day
Bitumin.ous Base Stablizing	3000 syd/day
Ditching	2000 ft/day
Trenching for Shoulders	2500 ft/day
Station Grading	2000 ft/day
Clearing	9500 syd/day

Restoration(Topsoil, Seeding, Fertilizer & Mulch)	2000 syd/day
Sodding	2500 syd/day
Seeding	47000 syd/day
Guard Rail	750 ft/day
Fence(Woven Wire)	1200 ft/day
Fence(Chain Link)	500 ft/day
Clean Up	2000 ft/day
Concrete Median Barrier	1000 ft/day
Cure	min. 7 days
Reroute Traffic(Add 4 days if 1st item)	1 day/move
Concrete Glare Screen	1500 ft/day
Light Foundations	6 units/day
Order & Delivery	6-8 week/order
Remove Railing & Replace with Barrier(1 or 2 decks at a time)	4 days/side
Longitudinal Joint Repair	1 mile/day
Crack Sealing	3 miles/day
Joint and Crack Sealing	1600 ft/day
Repairing Pavement Joints - Detail 7 or 8	650 ft/day
Seal Coat	4 lane miles/day
Diamond Grinding/Profile Texturing Concrete	3300 m2/day
Rest Area Building	
Order Material	3 months
Construct Building	9 months
Tower Lights	
Order and Deliver Towers	100 days
Weigh-In-Motion	
Order and Deliver Materials	1 month-6weeks
O & D with Installation	3 months
Raised Pavment Markers	300 each/day
Attenuators	2 each/day
Shoulder Corrugations, Ground or Cut	5miles-6miles/side/day
Aggregate Base	3500 syd/day
Aggregate Shoulders	450 cyd/day
Freeway Signing - 3# Post Type	50 signs/day
Concrete Joint Repair (High Production-Projects with > 1000 patches)	
Average(1.8m)	50 patches/day
Large(>1.8m)	600 syd/day
Bridge Painting	100 syd/day
Pin and Hanger Replacement	
Order Pin & Hanger	3 beams/day
	60 days

Bridge Repair

Scarifying(Including Clean up)	12000 syd/day
Joint Removal(Including Clean up)	13 ft/day
Formin.g & Placement	11.5 ft/day
Hydro-Demolishing	1000 ft/day
Barrier Removal	50 ft/day
Placement	150 ft/day
Hand Chipping (Other than Deck)	.3 cyd/person/day
Shoulder Corrugations, Ground or Cut	5 miles-6
miles/side/day	
Casting Latex Overlay	800 ft/day
Curing Overlay	
Regular	4 days
High Early	1 day
Thrie Beam Retrofit	100 ft/day
Beam End Repairs	
Welded Repairs	.75 days/repair
Bolted Repairs	.50 days/repair
Bolted Stiffeners (Pair)	.25 days/repair
Grind Beam Ends	.25 days/repair
Welded Stiffeners (Pair)	.25 days/repairH-
Pedestal Repairs:	
Welded Repair	.50 days/each
Replacement	1 day/each
Deck Removal	280 syd/day

Surfacing-Bituminous

Metro-Primary(<18000mtons)	
Paving	600 tons/day
Joints	500 ft/day
Cold Milling	4000 syd/day
Aggregate Shoulders	1000 tons/day
Metro Primary(>18000mtons)	
Paving	600 tons/day
Joints	650 ft/day
Cold Milling	9000 syd/day
Metro Interstate(>18000mtons)	
Paving	1200 tons/day
Joints	1200 ft/day
Aggregate Shoulders	1000 tons/day
Urban Primary(<18000mtons)	
Paving	700 tons/day
Joints	330 ft/day

	Cold Milling	2000 syd/day
	Rubblizing	2000 syd/day
	Aggregate Shoulders	500 tons/day
Urban Primary(>18000mtons)		
	Paving	1100 tons/day
	Joints	400 ft/day
	Cold Milling	2000 syd/day
	Aggregate Shoulders	550 tons/day
Urban Interstate(>18000mtons)		
	Paving	1300 tons/day
	Joints	700 ft/day
	Cold Milling	2000 syd/day
	Rubblizing	7000 syd/day
	Aggregate Shoulders	700 tons/day
Rural Primary(<18000mtons)		
	Paving	700 tons/day
	Joints	400 ft/day
	Cold Milling	650 tons/day
	Crush & Shape	12000 syd/day
	Aggregate Shoulders	700 tons/day
Rural Primary(>18000mtons)		
	Paving	1200 tons/day
	Joints	500 ft/day
	Cold Milling	900 tons/day
	Crush & Shape	12000 syd/day
Rural Interstate(>18000mtons)		
	Paving	1400 tons/day
	Joints	700 ft/day

B. WORKSHEET

WORK DAY/COMPLETION DATE DETERMINATION

CS: _____

JN:

DESCRIPTION OF WORK: _____

MAJOR
WORK ITEM

PRODUCTION QUANTITY RATE

ESTIMATED
TIME

This image shows a full page of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. A vertical margin line is present on the left side, creating a narrow left margin. The paper appears to be from a standard composition or notebook.

TOTAL ESTIMATED TIME:

COMPLETION DATE: _____ (Calendar Days or Work Days)

COMMENTS:

C. MDOT CALENDARS

The following are the MDOT 4, 5 and 6 day calendars:

CALENDAR	DESCRIPTION	START	FINISH
1	Std - Apr 16 - Nov 15 - 4 day	APR 16	NOV 15
2	LP - Bit Stab - 4 day	MAY 15	OCT 15
3	UP - Bit Stab - 4 day	JUN 01	OCT 01
4	LP S of M-46 - Bit Pave - 4 day	MAY 05	NOV 15
5	LP N of M-46 - Bit Pave - 4 day	MAY 15	NOV 01
6	UP - Bit Pave - 4 day	JUN 01	OCT 15
7	LP - Bit Seal Coat - 4 day	JUN 01	SEP 15
8	UP - Bit Seal Coat - 4 day	JUN 15	SEP 01
9	Tree Planting - Deciduous - 4 day	MAR 01 OCT 01	MAY 15 NOV 15
10	Tree Planting - Evergreen - 4 day	MAR 01	JUN 01
11	South LP - Restoration - 4 day	MAY 01	OCT 10
12	North LP - Restoration - 4 day	MAY 01	OCT 01
13	UP - Restoration - 4 day	MAY 01	SEP 20
14	Full Year - Winter Work - 4 day	JAN 01	DEC 31
21	Std - Apr 16 - Nov 15 - 5 day	APR 16	NOV 15
22	LP - Bit Stab - 5 day	MAY 15	OCT 15
23	UP - Bit Stab - 5 day	JUN 01	OCT 01
24	LP S of M-46 - Bit Pave - 5 day	MAY 05	NOV 15
25	LP N of M-46 - Bit Pave - 5 day	MAY 15	NOV 01
26	UP - Bit Pave - 5 day	JUN 01	OCT 15
27	LP - Bit Seal Coat - 5 day	JUN 01	SEP 15
28	UP - Bit Seal Coat - 5 day	JUN 15	SEP 01
29	Tree Planting - Deciduous - 5 day	MAR 01 OCT 01	MAY 01 NOV 15
30	Tree Planting - Evergreen - 5 day	MAR 01	JUN 01

31	South LP - Restoration - 5 day	MAY 01	OCT 10
32	North LP - Restoration - 5 day	MAY 01	OCT 01
33	UP - Restoration - 5 day	MAY 01	SEP 20
34	Full Year - Winter Work - 5 day	JAN 01	DEC 31
35	Full Year - Expedited - 6 day	JAN 01	DEC 31

ATTACHMENT G
HPSL 33010 – 87316C
Farm Lane on the campus of Michigan State University

MONTHLY PROGRESS REPORTS

The first two pages of this attachment are the necessary layout of the Monthly progress reports and the last three pages are a completed example.

Control Section 00000
Job Number 00000C
Structure Number S00
Date 00/00/00

MONTHLY PROGRESS REPORT

- A. Work accomplished during the previous month.
- B. Anticipated work items for the upcoming month.
- C. Real or anticipated problems on the project.
- D. Update of previously approved detailed project schedule (attached), including explanations for any delays or changes.
- E. Items needed from MDOT.
- F. Copy of Verbal Contact Records for the period (attached).

Structure Number - Control Section - Job Number
Route, Location Description
Design Schedule as of 00/00/95

**LIST TASKS, SUBMITTALS, APPROVALS AND MEETINGS AS OUTLINED IN
SCOPE OF DESIGN SERVICES AS NEEDED. THIS LIST IS JUST AN EXAMPLE.**

Original Authorized Start Date	Original Authorized Finish Date	(Anticipated) or Actual Start Dates	(Anticipated) or Actual Finish Dates	Task	Task Description
00/00/00	00/00/00	00/00/00	00/00/00	??	Initial project meeting.
00/00/00	00/00/00	00/00/00	00/00/00	3330	Conduct Design Survey..
00/00/00	00/00/00	00/00/00	00/00/00	3360	Prepare Base Plans
00/00/00	00/00/00	00/00/00	00/00/00		Submit Base Plans
00/00/00	00/00/00	00/00/00	00/00/00	3580	Develop Preliminary Plans
00/00/00	00/00/00	00/00/00	00/00/00	3390	Develop Construction Zone Traffic Control Concepts
00/00/00	00/00/00	00/00/00	00/00/00	3540	Develop Construction Zone Traffic Control Plan
00/00/00	(00/00/00)	00/00/00	00/00/00	3550	Develop Preliminary Traffic Operations Plan.
00/00/00	(00/00/00)	00/00/00	00/00/00	3351	Review & Submit of Preliminary Right-Of-Way Plans.
00/00/00	(00/00/00)	00/00/00	00/00/00		Submittal of The Plan Review Package.
00/00/00	(00/00/00)	00/00/00	00/00/00		Completion of the Plan Review Meeting.
00/00/00	(00/00/00)	00/00/00	00/00/00	3840	Develop Final Plans and Specifications
00/00/00	(00/00/00)	00/00/00	00/00/00		Submittal of final plans/proposal package to MDOT for final review.
00/00/00	00/00/00	00/00/00	00/00/00	3870	Omissions/Errors Check (OEC) Meeting
00/00/00	00/00/00	00/00/00	00/00/00		Consultant=s Plan Completion: Final Construction Plan/Proposal package with recommendations incorporated to MDOT (two weeks after OEC Meeting)
00/00/00	00/00/00	00/00/00	00/00/00		Final Deliverables to MDOT

MONTHLY PROGRESS REPORT

- A. Work accomplished during the previous month.
 - 1. During the last month we completed the Final Right of Way plans and submitted them to Thomas Nelson, Jr. on 05/01/99.
- B. Anticipated work items for the upcoming month.
 - 1. Submit the Preliminary Plans and related material on 03/11/99.
 - 2. Attend the meeting regarding the Ameritech lines on the bridge, scheduled for 03/12/99.
- C. Real or anticipated problems on the project.
 - 1. We foresee no problems at this time.
- D. Update of previously approved detailed project schedule (attached), including explanations for any delays or changes.
 - 1. The design is falling behind schedule because we had problems resolving the geometries of the ramps in relation to the bridge. The Preliminary Plan submittal will be the only task affected by this delay because we will make up the lost time prior to submitting the Final Plans and Specifications.
- E. Items needed from MDOT.
 - 1. Prior to final Plan submittal we will need the latest Special provision and Supplemental Specification checklist.
- F. Copy of Verbal Contact Records for the period (attached).
 - 1. Discussed bridge and ramp geometries with Tom Myers of M\$DOT Traffic and Safety Division on 07-24-95.

SN: S02 - CS: 12345 - JN: 11111C
M-111, from There Village Limits to north of That Road
Design Schedule as of 07/31/95

Original Authorized Start Date	Original Authorized Finish Date	(Anticipated) or Actual Start Dates	(Anticipated) or Actual Finish Dates	Task	Task Description
01/12/95	01/12/95	01/12/95	01/12/95 ??		Initial project meeting.
01/29/95	01/29/95	01/30/95	01/30/95 3330		Conduct Design Survey.
02/17/95	04/10/95	02/17/95	04/20/95 3360		Prepare Base Plans.
02/29/95	02/29/95	02/29/95	02/29/95 3390		Develop the Construction Zone Traffic Control Concepts
03/12/95	03/13/95	03/12/95	(03/30/95)	3540	Develop Construction Zone Traffic Control Plan
03/20/95	03/19/95	03/25/95	(03/30/95)	3551	Develop/Review Preliminary Traffic Signal Plan
07/01/95	07/01/95	(07/01/95)	(07/01/95)	3590	The Plan Review Meeting
07/11/95	08/11/95	(07/11/95)	(08/11/95)	3821	Complete/Review Traffic Signal Plan
09/15/95	09/15/95	(09/15/95)	(09/15/95)	3830	Complete Construction Zone Traffic Control Plan.
09/16/95	09/16/95	(09/16/95)	(09/16/95)	3840	Develop Final Plans and Specifications
09/25/95	09/23/95	(09/25/95)	(09/25/95)	3870	Omissions/Errors Check (OEC) Meeting

VERBAL CONTACT RECORD

Control Section 12345
Job Number 11111C
Structure Number S02
Date 07/31/95

Joe Engineer talked to Tom Myers and decided to use a 0.05'/ft super on ramp A leading into the bridge.

P/PMS TASK - INDEX - VERSION 2 rev 2
ISSUED 9/29/2000

P/PMS TASK	CURRENT DATE	LATEST REVISION DATE
3120 - CONDUCT STRUCTURE DECK CONDITION SURVEY	07/29/99	
3330 - CONDUCT DESIGN SURVEY	07/29/99	
3340 - CONDUCT STRUCTURE SURVEY	07/29/99	
3350 - CONDUCT HYDRAULICS SURVEY	07/29/99	
3360 - PREPARE BASE PLANS	06/22/99	
3361 - REVIEW AND SUBMIT PRELIMINARY RIGHT OF WAY (PROW) PLANS	07/16/99	
3370 - PREPARE STRUCTURE STUDY	06/16/99	
3380 - REVIEW BASE PLANS	06/29/99	
3390 - DEVELOP THE CONSTRUCTION ZONE TRAFFIC CONTROL CONCEPTS	07/16/99	
3510 - PERFORM ROADWAY GEOTECHNICAL INVESTIGATION	07/29/99	
3520 - CONDUCT HYDROLOGIC, HYDRAULIC AND SCOUR ANALYSES	08/29/00	revised per P. Schriener
3530 - CONDUCT FOUNDATION STRUCTURE INVESTIGATION	07/16/99	
3540 - DEVELOP CONSTRUCTION ZONE TRAFFIC CONTROL PLAN	07/16/99	
3551 - DEVELOP/REVIEW PRELIMINARY TRAFFIC SIGNALS PLAN	07/16/99	added to index 1/5/2000
3552 - DEVELOP PRELIMINARY PERMANENT PAVEMENT MARKING PLAN	07/16/99	
3553 - DEVELOP PRELIMINARY NON - FREEWAY SIGNING PLAN	07/16/99	
3554 - DEVELOP PRELIMINARY FREEWAY SIGNING PLAN	07/16/99	
3570 - PREPARE PRELIMINARY STRUCTURE PLANS	07/16/99	
3580 - DEVELOP PRELIMINARY PLANS	06/30/99	
3581 - FINAL RIGHT-OF-WAY PLANS	07/16/99	

P/PMS TASK	CURRENT DATE	LATEST REVISION DATE
3590 - REVIEW PRELIMINARY PLANS	06/29/99	
3670 - DEVELOP MUNICIPAL UTILITY PLANS	06/30/99	
3675 - DEVELOP ELECTRICAL PLANS	07/01/99	
3710 - DEVELOP REQUIRED MITIGATION (FOR INFORMATION ONLY, THIS IS NOT A CONSULTANT TASK)	07/16/99	
3720 - SUBMIT ENVIRONMENTAL PERMIT APPLICATIONS (FOR INFORMATION ONLY, THIS IS NOT A CONSULTANT TASK)	07/16/99	
3821 - COMPLETE/REVIEW TRAFFIC SIGNAL PLANS	07/16/99	
3822 - COMPLETE PERMANENT PAVEMENT MARKING PLAN	07/16/99	
3823 - COMPLETE NON-FREEWAY SIGNING PLAN	07/16/99	
3824 - COMPLETE FREEWAY SIGNING PLAN	07/16/99	
3830 - COMPLETE CONSTRUCTION ZONE TRAFFIC CONTROL PLAN	06/22/99	
3840 - DEVELOP FINAL PLANS AND SPECIFICATIONS	07/02/99	
3850 - DEVELOP STRUCTURE FINAL PLANS AND SPECIFICATIONS	07/29/99	
3870 - HOLD OMISSIONS/ERRORS CHECK (OEC) MEETING	07/13/99	
4120 - OBTAIN PRELIMINARY TITLE COMMITMENTS	06/29/99	
4130 - PREPARE MARKED FINAL R.O.W. PLANS	06/29/99	
4140 - PREPARE PROPERTY LEGAL INSTRUMENTS	06/29/99	
5010 - CONSTRUCTION PHASE ENGINEERING ASSISTANCE	07/29/99	

**ATTACHMENT H
HPSL 33010 – 87316C**

Farm Lane on the campus of Michigan State University

PUMP STATION SCOPE OF WORK

I. Description of Work

The work shall consist of designing a new pump house in accordance with the MDOT Drainage Manual for the Farm Lane project. The Farm Lane project includes two locations where the roadway will be lowered to pass under railroad structures at the existing CSX Railroad and CN Railroad at-grade crossings. The design of the pump house will incorporate the latest hydraulic design calculations, and designing the process pumps and outfall. Additionally, a special provision will be required for dewatering the site during construction and make specific recommendations regarding the impacts of dewatering.

II. Consultant Responsibilities

1. A complete design for a new pump house in accordance with the MDOT Drainage Manual. The design flow shall be calculated in accordance with the MDOT Drainage Manual. The drainage areas will be delineated, the runoff coefficients calculated and the rainfall intensity will be determined. This information will be used to determine the hydraulic flows. The engineer will then route the flows through the system to determine the adequate retention required. The station shall be designed to utilize submersible propeller pumps.
2. Electrical design shall be in accordance with the MDOT Drainage Manual. Electrical design services will include the sizing of the electrical service for the permanent and redundant power source including the transformers, the sizing of all feeder conduit and wire, ensuring that all requirements for hazardous locations of electrical equipment are met, sizing all motor starters, sizing all control cabinets, sizing all junction boxes and seal off, provide a one-line power diagram, provide a ladder logic diagram of the pump controls corresponding to JIC standards, provide details showing the location of all electrical hardware and control devices, provide detailed specification of all power and control equipment including the proper methods of installation and the pump sequence of operation. Process instrumentation will be coordinated between the process and electrical designs.
3. Provide a maintenance operation manual of the pump station.
4. Provide plans, specifications and quantities for the proposed pump station.
5. Compute and verify all plan quantities.